RCA Amateur Radio Club
Indianapolis, IN

www.w9rca.org

AUGUST 2020 MONTHLY NEWSLETTER

A VIRTUAL ZOOM MEETING WILL BE SCHEDULED FOR
TUESDAY AUGUST 11 AT 7:00 EDT
INVITATIONS TO JOIN WILL BE EMAILED BY AUGUST 10

RCA ARC NEWS

AUG 11 MEETING – For the August 11th meeting we shall again use a Zoom virtual meeting. The meeting will start at 7PM and is being hosted on the Indiana ARRL Section Zoom courtesy of the Indiana SCM Jimmy Merry, KC9RPX.

You will receive an email message with a link, meeting ID and password by August 10th. If you can access your emails by your smart phone, then you can join using it. If you join using your desktop or laptop and do not have a video camera, then it will join you with audio only assuming you have some type of microphone connected to the computer. If not, then you will be logged as listen only. You can also use your phone and call in using the numbers listed in the email for the session.

JULY MEETING SUMMARY – Thanks to all those who participated in the July Zoom meeting. Jim K9RU gave an update on Field Day. Their was a discussion about the latest WSJT-X release and band conditions. Dick, W9ZB talked about the June ARRL VHF contest and band conditions. Harold Smith mentioned some of the home brew projects he was working on. Jon Powell, KC9GUM, said Bill Megel, N9AYD, was at home and doing well after heart surgery.

AMATEUR RADIO LICENSE TEST SESSION

Time: Saturday, August 8, 2020, Starting at 12:00 pm by appointment only. (Registration, FRN, form NCVEC 605 filled out and a mask all will be required)
Location: Salvation Army EDS Training Facility, 4020 Georgetown Rd Indianapolis, IN 46254-2407
Contact: **Jim Rinehart, k9ru@arrl.net, 317 721-1458**

HAMFESTS, OPERATING EVENTS, VOLUNTEER OPPORTUNITIES

Aug 8-9	WAE CW Contest
Aug 8	Hendricks County Tail Gate, 9am -1pm Avon United Methodist Chruch, 6858 E US36, Avon, IN
Aug 15	East Centreal Indian HAMFest, 8am – 4pm Randolph County 4-H Fairgrounds 1855 US27, Winchester, IN

Aug 15-16	ARRL 10 GHZ and up contest
Aug 15-16	North American QSO Party, SSB
Aug 16	ARRL Rookie Roundup RTTY
Aug 30	World Wide Digi DX Contest
Nov 7	Hoosier Hills Bedford, IN
Nov 14-15	Ft Wayne Hamfest (Sunday Free)
July 9-10, 2021	Indianapolis Hamfest

For more information: http://www.indyhams.org/events

HENDRICKS COUNTY IS OFFERING A TECHNICIAN LICENSE CLASS. – Amateur radio Tech License class will begin on Saturday August 15th. The second session will be on Saturday August 22nd, with testing in the afternoon of the 22nd. If you are interested, please Contact Gordon Cotton, W9GKC, for more information at KD0EWM.IN@gmail.com.

MORE THAN 12,000 REGISTER EARLY FOR *QSO TODAY* VIRTUAL HAM EXPO

More than 12,000 have registered to attend the first *QSO Today* Virtual Ham Expo, August 8 - 9, *QSO Today* host Eric Guth, 4Z1UG, said this week.

"Since the Expo is a completely new experience for the ham radio community, it's great that so many people are excited and already registered," he said. "And with almost 3 weeks before the event, the number of registrants continues to increase." Attendance is free and there are early-bird prize incentives for registering by July 24.

More than a typical web meeting, the Expo is built on a live virtual platform commonly used by Fortune 500 companies and major universities. The platform simulates a convention experience with an exhibit hall and booths staffed by live attendants, a speaker auditorium, and even a lobby. Attendance just requires an internet connection and a computer, tablet, or smartphone.

The Expo will offer four separate speaker tracks focusing on a range of topics. Speakers will also be able to provide related material, such as slides and white papers, that attendees can download. Every session will have a Q&A where attendees can submit questions in real time via chat.

More than 30 booths will be open for attendees to visit, and exhibitors will have different options to engage with attendees. Exhibitor booths can provide downloadable content, such as videos, spec sheets, and manuals, and attendees can save content in a virtual briefcase to read later. Visitors will also be able to interact one-on-one with booth representatives, using a Skype-like system.

"The experience of a virtual expo is not meant to replace in-person conventions," Guth said. "However, I strongly believe that virtual events in our community are here to stay. Given COVID-19 and its likely lasting impact on travel, especially given our demographic, this virtual expo enables the ham community to continue coming together to learn and engage."

Guth said that younger hams who have grown up with the internet will feel comfortable with the Expo platform, "making it easier for them to participate and find their place in this remarkable hobby."

Access to all speaker presentations and exhibitor booth content will remain on the Expo site for 30 days following the event.

The *QSO Today* Virtual Ham Expo is an ARRL-sanctioned hamfest.

AMSAT-DL SUBMITS LUNAR LANDER PROPOSAL TO EUROPEAN SPACE AGENCY

Germany's amateur satellite organization AMSAT-DL has submitted a comprehensive proposal to the European Space Agency (ESA) for its Lunar Amateur Radio Transponder (LunART) lunar lander -- a communications platform on the Large European Lander to support communication and payload experiments. AMSAT-DL's Peter Guelzow, DB2OS, and Matthias Bopp, DD1US, say that a LunART (called "LunaART" in the AMSAT-DL proposal) would support direct communication with Earth via amateur radio, support university and student payloads and offer direct access to their experiments, and expand the reach of radio science. It could also provide backup communication capability and capacity during an emergency, or when the ESA network is busy.

The comprehensive radio platform would use the European frequency protocol of 2.4 GHz up and 10.45 GHz down (approximately 100 W), pioneered in the QO-100 satellite, the first geosynchronous amateur radio payload. The platform would also include a VHF/UHF transponder. AMSAT-DL would develop and build the necessary hardware and software and provide ground station support via the 20-meter dish at AMSAT-DL headquarters in Bochum, Germany. They envision developing a smaller ground station with an approximately 1-meter dish to support groups, including schools and universities. Low-power beacons would transmit on various frequencies from VHF (145 MHz) through SHF (up to 24 GHz or even 47 GHz), AMSAT-DL's proposal says.

"This transponder would also be an ideal platform to develop new transmission schemes with novel modulation and coding techniques optimized for long-distance communications with the corresponding high latency (long delays)," AMSAT-DL said. "This would provide essential knowledge in preparation of a future Mars mission." In addition, LunART could include the capability to transmit still or slow-scan television images and video to schools "from cameras attached to the lander monitoring the moon surface and perhaps the Earth in the background [which] would be ideal stimuli for getting school kids and STEM organizations further interested in space."

The proposal is on open access at the ESA website and is now being evaluated. AMSAT-DL's LunART follows the Lunar Amateur Radio Interaction Experiment (LARIE) proposal from Andy Thomas, G0SFJ. Both refer to weak signal modes and suggest the same frequency bands. Thomas said he welcomes LunART as a well-developed proposal and hopes ESA will support it as well. -- *Thanks to* Southgate Amateur Radio News

DXCC ENTITIES IN PLAY AS US REJECTS CHINA'S SIGNIFICANT SOUTH CHINA SEA CLAIMS

To radio amateurs, Scarborough Reef or the Spratly Islands are DX locations, occasionally activated to provide needy DXers with "a new one." The Spratlys are #53 on the Club Log DXCC Most-Wanted List, but Scarborough Reef -- a much more difficult piece of real estate to access -- is #4. These South China Sea Islands are once again in the news, as the US has begun putting heat on China by rejecting nearly all of its significant land claims in the region. Secretary of State Mike Pompeo this week said that the US now regards virtually all Chinese maritime claims outside of its internationally recognized waters to be illegitimate.

"The world will not allow Beijing to treat the South China Sea as its maritime empire," Pompeosaid. "America stands with

our Southeast Asian allies and partners in protecting their sovereign rights to offshore resources, consistent with their rights and obligations under international law. We stand with the international community in defense of freedom of the seas and respect for sovereignty and reject any push to impose 'might makes right' in the South China Sea or the wider region."

A 2016 ruling from an international tribunal discounted China's claims with respect to Scarborough Reef -- also known as Scarborough Shoal -- and the Spratlys, but it did not rule on the matter of sovereignty. In addition to China's claim, Malaysia, Taiwan, Vietnam, and the Philippines have asserted ownership of the Spratlys. Scarborough Reef is claimed by China, the Philippines, and Taiwan. The Permanent Court of Arbitration in the Hague ruled in favor of the Philippines in a dispute with China over Scarborough Reef. The tribunal said that although navigators and fishermen from China and other states have historically made use of South China Sea Islands, there was no evidence that China had historically exercised exclusive control over the waters or resources. The tribunal said China had violated the Philippines' sovereign rights and had caused "severe harm to the coral reef environment" by building artificial islands and an air strip.

In 2015, a Chinese naval vessel "harassed a Philippine Air Force patrol flight in the Spratlys," one news account reported, by firing an illumination round. The incident postponed a Philippine Navy flight that was to evacuate an ailing participant of the then-just-ended DX0P DXpedition. The Chinese Navy has also warned off private aircraft. DX0P was issued by the Philippines. Last week, China complained about the US conducting joint exercises with two US aircraft carrier groups in the region.

A May 2007 DXpedition to Scarborough Reef used the call sign BS7H, granted by China. DXpedition team members operated from wooden platforms mounted atop each of the reef's four rocks that were exposed during high tide. The ARRL Board of Directors voted in 1996 to add Scarborough Reef to the ARRL DXCC List.

FIELD DAY 2020 IS SHAPING UP TO BE ONE FOR THE RECORD BOOKS

ARRL Contest Program Manager Paul Bourque, N1SFE, reported this week that ARRL has received more than 8,700 online Field Day entries, and paper-only entries have started arriving too.

"As many participants chose to operate from home this year, and given the 2020 rules waivers, we have seen a tremendous increase in entries over last year's event," Bourque said. "Most of the entries received have been through the online web app, and Headquarters staffers have begun processing the paper entries this week." The 2020 waivers allowed individual club members to attribute their scores to their clubs.

Participants who submitted entries online are encouraged to check the Field Day entries received page to verify that their entries are marked as complete, and that the club name entered is correct. Entries with a status of "pending" are incomplete entries that are missing one or more items, and these need to be completed for an official entry.

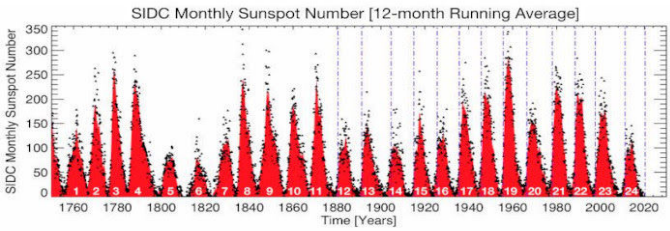
Share your stories and photos using the ARRL soapbox page or via social media, such as on the ARRL Field Day Facebook group.

NEWER SOLAR CYCLE 25 FORECAST RUNS COUNTER TO CONSENSUS

Scientists associated with the National Center for Atmospheric Research, the University of Maryland, NASA Goddard Space Flight Center, and other institutions are offering a "bold prediction" on how Solar Cycle 25 will play out. In a paper, "Overlapping Magnetic Activity Cycles

and the Sunspot Number: Forecasting Sunspot Cycle 25 Amplitude," they assert that the next sunspot cycle will be of major proportions. The forecast stands in stark contrast to the consensus of forecasters who predict that the magnitude of the nascent Cycle 25 may not be much different from the current unremarkable solar cycle, which appears to have reach its low point.

"From the dawn of modern observational astronomy, sunspots have presented a challenge to understanding -- their quasi-periodic variation in number, first noted 160 years ago, stimulates community-wide interest to this day," the abstract points out. "A large number of techniques are able to explain the temporal landmarks, (geometric) shape, and amplitude of sunspot 'cycles,' however, forecasting these features accurately in advance remains elusive."



Monthly sunspot numbers since 1749. The data values are represented by dots, and the 12-month running average values are illustrated as a red shaded area. Vertical blue dashed lines signify the magnetic activity cycle termination times that trigger the rapid growth of sunspot activity.

The paper notes that recent studies have illustrated a relationship between the sun's 22-year Hale magnetic cycle and the production of sunspot cycle landmarks and patterns, but not the amplitude of the cycle.

"Using discrete Hilbert transforms on 270 years of monthly sunspot numbers to robustly identify the so-called 'termination' events -- landmarks marking the start and end of sunspot and magnetic activity cycles -- we extract a relationship between the temporal spacing of terminators and the magnitude of sunspot cycles," the abstract explains. "Given this relationship and our prediction of a terminator event in 2020, we deduce that Sunspot Cycle 25 will have a magnitude that rivals the top few since records began. This outcome would be in stark contrast to the community consensus estimate of Sunspot Cycle 25 magnitude."

According to the paper, low-amplitude solar cycles appear to correspond with widely separated terminators, while larger-amplitude cycles correspond to more narrowly separated terminators.

"[O]ur best estimate for the [sunspot number] amplitude of Solar Cycle 25 is 233 spots, with a 68% confidence that the amplitude will fall between 204 and 254 spots," the paper posits. "We predict with 95% confidence that the Cycle 25 amplitude will fall between 153 and 305 spots."

The researchers concede that their forecast is outside of the scientific consensus, based on different paradigms. "Over the coming months, as [Solar Cycle] 25 matures, it will become evident which of these paradigms is most relevant," the paper says. "Very early indications of the spot pattern are appearing at higher-than-average latitudes (~40°). Historically, high-latitude spot emergence has been associated with the development of large amplitude sunspot cycles -- only time will tell."

AMSAT VP SAYS HUSKY-1 CUBESAT PROJECT HELPED PAVE THE WAY FOR FUTURE MISSIONS

AMSAT Vice President of Engineering Jerry Buxton, N0JY, said that while it was disappointing that the amateur transponder on HuskySat-1 (HO-107) was not available any longer, following the satellite's science missions, the overall HuskySat-1 project and mission "were quite beneficial for our partner and for AMSAT." The linear transponder module (LTM) on HuskySat-1 was operational for more than 3 months, failing during or just after a period of full sun when LTM temperatures topped 80 °C (176 °F). HuskySat-1 was the first CubeSat from the Husky Satellite

Lab at the University of Washington (UW) and the first mission with AMSAT's LTM V/u transponder onboard. University researchers conducted their work using an FCC Part 5 Experimental license.

"The HuskySat-1 team was able to command their satellite and experiments and receive the telemetry they sought, and AMSAT was able to work through the extensive process of making a new design for a 'black box' radio module that can be integrated into a non-AMSAT spacecraft and fly in the space environment," Buxton said in a recent post to the AMSAT-BB reflector. "While licensed and operated as an amateur radio satellite by AMSAT during the transponder use, some facts set HO-107 apart from our Fox-1 CubeSats and other AMSAT satellites," Buxton explained, pointing out that HuskySat-1 was not an AMSAT satellite.

"We have no control and may not have any insight into how a partner actually uses the LTM," he said. "While we see the LTM temperatures and many of the other typical data fields that we downlink to *FoxTelem* regarding LTM health, data such as temperature of the host environment as well as other specific information like power and the state of the other systems in a host satellite may or may not be available to us. Whether LTM is operated within design limits is entirely up to the host."

Buxton said the HuskySat team and AMSAT cooperated smoothly on the mission. The HuskySat-1 team is processing and studying its data for use in their thesis and classes and preparing it for release "in a specific way typical of such an institution today," he said. "AMSAT is generally more forthcoming with information about our missions, but what we can and have said about this mission is determined by UW."

Buxton said the LTM concept is now becoming available for other non-AMSAT CubeSats to fly amateur radio on their mission.

"HO-107 is the pilot production of LTM and was developed in partnership with UW HuskySat-1," Buxton explained. "It was the first CubeSat radio module designed and built by AMSAT for use in other host CubeSats, and UW was key in working with us through the design and processes needed to provide such a module. They did not buy it as such, nor did we give it to them as an 'off-the-shelf' product, as we plan to for future LTM production."

LTM was developed from the Fox-1E linear transponder design. "Overall, the HuskySat-1 team was quite happy with the telemetry and command performance, even with the LTM anomalies showing up toward the end of their experiments," Buxton said. "In the process of getting HuskySat-1 to orbit, several students became interested in amateur radio, and we have already had preliminary discussions of future joint mission plans."

"There is no doubt that HO-107 was a success in many ways beyond the operational life of the transponder," Buxton added. -- *Thanks to* AMSAT News Service

INTERNATIONAL LIGHTHOUSE LIGHTSHIP WEEKEND IS ON TRACK FOR 2020.

Registrations for this year's popular International Lighthouse Lightship Weekend (ILLW) appear to have been largely unaffected by the current COVID-19 pandemic. The event will take place this year over the August 22 - 23 weekend. By mid-July, more than 200 entries had been received, and some 400 are expected to have signed up by the event weekend. New to this year's event is Corsica at Phare d'Alistro, which for ILLW purposes carries the French number of FR0030. Two lighthouses in Ghana will be on the air for the first time, as well as Buck Island Lighthouse in the US Virgin Islands (VI0001). Germany is well in the lead with 54 entries, followed by Australia with 29 entries, and the US with 27 entries. This event is designed as a fun weekend to encourage exposure to amateur radio and lighthouses to the visiting public, and ILLW stresses that contacts

should be more than just an exchange of signal reports. All participants are urged to observe local COVID-19 safety guidelines. --*Thanks to Kevin Mulcahy, VK2CE*

HIGH SCHOOL MARINE BUOY TRANSMITTER NOW ACTIVE ON 20-METER *WSPR*

Phil Karn, KA9Q; Randy Standke, KQ6RS, and members of the Mount Carmel High School Amateur Radio Club (MCHSARC) in San Diego have constructed and deployed an amateur radio marine buoy in the Pacific. The buoy, which transmits *WSPR* on 14.0956 MHz USB, has already been heard around the continental US, Brazil, Hawaii, Japan, Costa Rica, Australia, and South Africa.

"Over the past year, Randy and I have mentored the MCHSARC in designing and constructing a simple marine buoy that was deployed from the RV *Sally Ride* [on July 16], about 700 kilometers off the coast of southern California," Karn said in a post on the AMSAT Bulletin Board. "It is up and transmitting *WSPR* on 20 meters using the call sign KQ6RS, and is being received all over the US and into Canada and Brazil." Karn is blogging about the project with updates.

The electronics are the 20-meter *WSPR* version of the WB8ELK "pico tracker" that has been flown on long-duration balloons. "We removed the solar panels and substituted 21 ordinary alkaline D cells, wired to supply 4.5 V," Karn explained. "We estimate battery lifetime will be 6 months."

Karn said that the project made use of everyday hardware. The buoy -- essentially a spar buoy -- was constructed using a 5-foot section of 4-inch PVC pipe, with sufficient ballast in one end of the pipe to permit it to float vertically in the water. The top is closed using a sewer pressure test plug, which has a bolt in the center that acts as a convenient feed-through and antenna mounting point. The antenna is a stainless-steel CB whip with a matching network.

“We use the sea as a counterpoise, but to avoid direct metal/sea water contact, we lined the inside of the pipe with copper tape to form a capacitive connection," Karn said.

During initial floatation testing, the project team found that the ballasted pipe alone was remarkably stable in pitch, roll, sway, and surge, but oscillated a lot in heave -- i.e., up and down movement. Cross arms were at the water line to add drag in the vertical direction, to counter the issue. Because sea water was required to tune the antenna, Standke floated the buoy off a dock in Mission Bay.

Deployment was to be from a NOAA vessel in April, but the trip was canceled due to the COVID-19 pandemic. Standke secured a trip on the RV *Sally Ride*, a research vessel operated by Scripps Institute of Oceanography.

The first reception report was on July 16 at 12:52:30 UTC from grid square CL89eu, although the current carried the buoy east into CL89fu at 20:32:30 UTC. The buoy (KQ6RS-1) can be tracked on the APRS and WSPRnet sites.

Karn said the project team is already planning its second buoy, which may include two-way links, satellite tracking, and sensors.

A JULY 9 *NATURE COMMUNICATIONS* ARTICLE DESCRIBES THE LONGJIANG-2/LUNAR-OSCAR 94 (LO-94) SPACECRAFT, WHICH CARRIED THE FIRST AMATEUR RADIO COMMUNICATION SYSTEM INTO LUNAR ORBIT.

"Design and flight results of the VHF/UHF communication system of Longjiang lunar microsatellites" recounts how, as part of China's Chang'e-4 lunar far side mission, two lunar microsatellites for low-frequency radio astronomy, amateur radio, and education -- *Longjiang-1* and *Longjiang-2* -- were launched as secondary payloads on May 20, 2018, along with the *Queqiao L2* relay satellite. Five days later, *Longjiang-2* successfully inserted itself into an elliptical lunar orbit of 357 × 13,704 kilometers (221 × 8,496 miles) to become the smallest spacecraft to enter lunar orbit with its own propulsion system. The satellite carried a VHF/UHF SDR, designed for operation with small ground stations. The article describes and evaluates the design of the VHF/UHF radio and the modes used. Flight results of the VHF/UHF radio are also presented, including operation of the radio, performance analysis of downlink signals, and the first lunar orbit UHF very-long-baseline interferometry (VLBI) experiment.

ED KROME, K9EK, COLUMBUS, IN KEY PLAYER IN ARISS DESIGN OF A MULTIVOLTAGE POWER SUPPLY

In July, ARISS volunteer Ed Krome, K9EK, and ARISS (Amateur Radio on the International Space Station) were recognized in an article posted by The Republic, the Columbus newspaper. Ed lives in Columbus and the story told how he, as an Amateur Radio operator, got intrigued in assisting with ARISS. The writer described Krome's background as an electrical and mechanical engineer and ham radio operator for years, and after retiring, deciding to help ARISS. He was a key player in the mechanical design of the ARISS MultiVoltage Power Supply (MVPS), part of the new ham radio station waiting in the International Space Station (ISS)to be set up for ARISS radio contacts. The article explained how the all-volunteer ARISS team spent nearly four years designing, developing, building, and testing all of the new ham radio station equipment, meeting NASA's many very stringent safety requirements during four testing phases.

The writer highlighted ARISS, too, explaining that the program promotes STEAM (science, technology, engineering, the arts, and mathematics) initiatives and how the MVPS will play a large part in this since it will power the interactive experiments onboard the ISS that engage students.

When asked what he liked best about working on ARISS projects, Krome enthusiastically replied, "It's just exciting and interesting. It's a new technology, it's space-related. It's STEM, it's trying to get the next generation, or two generationsfrom now, interested in science, technology, engineering, and mathematics."

The newspaper story is at:

http://www.therepublic.com/2020/07/08/connecting_in_orbit__retired_columbus_engineer_works_on_radio_power_supply_for_space_station/

FCC FINES HOBBYKING NEARLY $3 MILLION FOR MARKETING UNAUTHORIZED DRONE TRANSMITTERS

The FCC has issued a *Forfeiture Order* (*FO*) calling for HobbyKing to pay a fine of $2,861,128 for marketing drone transmitters that do not comply with FCC rules. An FCC Enforcement Bureau investigation stemmed in part from a 2017 ARRL complaint that HobbyKing was selling drone transmitters that operated on amateur and non-amateur frequencies, in some instances

marketing them as amateur radio equipment. The fine affirms the monetary penalty sought in a June 2018 FCC *Notice of Apparent Liability* (*NAL*).

The FCC said its investigation found that dozens of devices marketed by the company transmitted in unauthorized radio frequency bands and, in some cases, operated at excessive power levels. "Such unlawful transmissions could interfere with key government and public safety services, like aviation systems," the FCC said. The ARRL EMC Committee and Lab also determined that potential interference to the secondary (transponder) air traffic control radar system on 1030 - 1090 MHz could occur.

"We have fully considered HobbyKing's response to the *NAL*, which does not contest any facts and includes only a variety of legal arguments, none of which we find persuasive," the FCC said in the *FO*. "We therefore adopt the $2,861,128 forfeiture penalty proposed in the *NAL*."

The FCC pointed out in the *FO* that it has previously made clear that "[d]evices used in the Amateur Radio Service do not require authorization prior to being imported into the United States, but devices for other services, including the CB service, require Commission approval." The FCC investigation found that 65 models of devices marketed by HobbyKing should have had FCC certification.

Responding to the *NAL*, HobbyKing claimed to have ceased marketing the 65 models the FCC identified, but promised only to make "best efforts" not to market other noncompliant RF devices. Read more.

THE ARRL IS DOING 30-MINUTE WEBINARS

ARRL is launching a new webinar series to help introduce more members to the variety of activities and opportunities that radio amateurs enjoy. The ARRL Learning Network will offer live presentations by member-volunteers, for members. Like hamfest forums and radio club presentations, the webinars are intended to help participants get more active, involved, and engaged in amateur radio.

Presentations are 30 minutes each, making them easy to fit into a lunch break or as a short evening activity. A 15-minute question-and-answer period follows each presentation for those who can participate longer. The webinars will be hosted initially using *GotoWebinar*. Webinars will be recorded, and presentations will be available for future viewing by members and ARRL-affiliated radio clubs as part of an ARRL Learning Network library.

The webinars continue a string of new ARRL benefits introduced in 2020 that has included *On the Air* magazine, expanded member access to all ARRL digital magazines, and the new *On the Air* and *Eclectic Tech* podcasts.

“The ARRL Learning Network puts experienced member-volunteers at the forefront as a regular source of knowledge-sharing in amateur radio,” ARRL Lifelong Learning Manager Kris Bickell, K1BIC, said. “We hope members participating in the ARRL Learning Network — including presenters — will find it particularly rewarding to share experiences and learning that will motivate more of our community toward lifelong journeys as radio amateurs.”

Members who would like to be considered for future ARRL Learning Network webinars should have experience in delivering presentations, including familiarity with online webinar technology, live video, and screen sharing. Prospective presenters may complete a Call for Speakers form. --ARRL

SHORTS

Kenwood 1st HF SDR Transceiver ST-995 http://www.cqdx.ru/ham/new-equipment/kenwood-st-995sdr/

First Notes on Reverse Engineering Kenwood TH-D74 Firmware https://kk4vcz.com/posts/th-d74-firmware/

"The Uncertain Future of Ham Radio" is the title of an *IEEE Spectrum* article by Julianne Pepitone that addresses a range of topics, from ARRL to spectrum allocation and ham radio demographics. The author interviewed both young and old radio amateurs to glean their individual perspectives on how to grow amateur radio and keep it alive for future generations.

The ARRL Board of Directors will meet July 17 - 18 in virtual session for its second regular meeting of the year. The Board will hear reports from committees, including the CEO Search Committee, chaired by Central Division Director Kermit Carlson, W9XA; consider committee reports and recommendations, and proposals for amendments to the *Articles of Association* and *Bylaws*.

ARRL has a new way to let members know when the digital editions of *QST* and other publications are available. Distributed via email, *The ARRL Current* offers a monthly overview of ARRL publications and member benefits. The inaugural edition launched in June. Subscribe now to receive each issue going forward. Manage your email preferences from your ARRL account (members must first be registered on the ARRL website). Go to the Edit Email Subscriptions page, select ***The ARRL Current***, and then click **Save**.

Volunteer Monitor (VM) program coordinator Riley Hollingsworth, K4ZDH, reported that monitoring hours increased significantly from the first quarter to the second quarter of the year. VMs logged first-quarter HF hours at 3,533, and VHF/UHF/Other hours at 2,258. They logged second-quarter HF hours at 5,930, and VHF/UHF/Other at 7,478.

Anchorage VEC Goes to All-Electronic Testing- All exams administered by group are now paperless, using a web-based platform for both exams and paperwork

The European Space Agency (ESA) has released a new video, "How to get pictures from the International Space Station via Amateur Radio." The video features radio amateur David Honess, 2E0XDO (ex-M6DNT). An article on the same topic, "Pictures from space via ham radio," appeared last year in *The MagPi*, the Raspberry Pi magazine.

The Reverse Beacon Network (RBN) will gain 15 new nodes, thanks to a Yasme Foundation supporting grant. These new nodes will be added in regions where there is a need for reception reports to support amateur radio operation and where those reports will also have scientific value for geophysical research. Yasme was assisted in this effort by supporting grants from Amateur Radio Digital Communications (ARDC) and by scientific advice from HamSCI researchers. Node locations will be available after a final list of hosts is available.

Dan's, KB6NU, blog explains two ways to display contest contacts on an online map. LogView, by EI8IC, and Log2Map, by ON6ZQ, operate on Cabrillo and ADIF files, respectively. Using tools like these can point to areas where you might want to improve your signal.

Proper grounding and bonding can be designed to handle lightning, but if the energy levels are unusually high, protection could be overwhelmed. Extreme lightning bursts, aka "megaflashes," were observed in record sizes in Argentina and other areas in 2019, according to the UN's weather agency WMO. Imagine a flash lasting over 16 seconds, or a single flash that traverses a distance of 400 miles. Oklahoma held the longest-distance flash of 199 miles set in 2007 up until Brazil's distance-record flash in October 31, 2019.

NASA's Solar Dynamics Observatory has been consistently taking pictures of the sun past 10 years-- one every three-quarters of a second -- across a number of different wavelengths. Images of the extreme ultraviolet wavelength of 17.1 nanometers reveals the sun's corona, and hourly corona pictures have been combined into a time-lapse movie of the last decade of solar activity, condensed into about 60 minutes. Use the video playback controls to flip between the starting and later portions to visualize how activity has diminished between 2010 and now. (Bill, AI5I, and Ward, N0AX)

Tom, N1MM, found this gem for Microsoft Windows users: "Did you know you can rename sound card inputs and outputs? If you only have one sound device, there is no need, but if you have many, it may be confusing which is which. Once you figure it out, use this link to see how to rename the sound card to something more meaningful. (via N1MM Logger+ group)

According to *The Daily DX*, D1- and DØ-prefix stations are said to be located in the Donetsk Republic -- a pro-Russian separatist organization operating from within Donetsk, Ukraine. Contacts with these stations do not count toward DXCC.

The Reverse Beacon Network (RBN) has introduced what it's calling "RBN Map Data," an open-source world map of spots with each trace color-coded by band. RBN Developer Pete Smith, N4ZR, says the map feature may be offline from time to time as developers continue to work on it, and he'd like to hear from users. -- *Thanks to* The Daily DX

AMSAT-UK has announced the OSCAR Satellite QSO Party, aimed at encouraging radio amateurs around the world to get on the air and make contacts via satellite during summer in the Northern Hemisphere. While points are given per contact, AMSAT-UK says the OSCAR Satellite QSO Party is not a contest. The event starts at 0000 UTC on August 1 and continues until 2359 UTC on September 22. -- *Thanks to* AMSAT News Service

Dan's, KB6NU, blog explains two ways to display contest contacts on an online map. LogView, by EI8IC, and Log2Map, by ON6ZQ, operate on Cabrillo and ADIF files, respectively. Using tools like these can point to areas where you might want to improve your signal.

Scott, N3FJP, has released a new 1.2 version of Club Score Processor. This application can be used to display a web-based leaderboard of scores for a group of amateurs that are competing in a particular contest. Enhancements in the new version include additional text and HTML placement on the leaderboard page, and the ability to accept scores from non-N3FJP logging programs.

N4QS's "Remote Ham Radio from the Bluegrass State." N4QS talk describing his remote station on Kentucky.

Australia: ACMA approve 2 x 1 contest callsigns - ACMA have approved the issue of 2 x 1 contest callsigns with VJ, VK and VL prefixes. These callsigns are available for Advanced class amateurs and club stations, for contest operation only. There is a limit of one callsign per licensee and one per club. The 2 x 1 contest callsign structure was originally developed by a cross sector committee convened by RASA. After a suggestion by AMC, ACMA has extended this structure to two new prefixes;VJ and VL. This allows 2 x 1 callsigns to be available tmany more amateurs.

THANKS FOR READING !

THE RCA ARC MONTHLY NEWSLETTER IS COMPILED AND EDITED BY JIM RINEHART, K9RU AND JIM KEETH, AF9A. ALL MATERIAL CONTAINED HEREIN IS OBTAINED FROM THE SOURCES CREDITED AND EDITED FOR THIS NEWSLETTER. EMAIL TO mail to:WebMaster@w9rca.org. Check our web site at http://www.w9rca.org